

Abstract

A highly selective and sensitive of a carbonic anhydrase-based method for measurement of zinc ion by an excitation ratiometric format based on resonance energy transfer: i.e., where the zinc ion level is transduced as the ratio of fluorescence intensities excited at two different excitation wavelengths, is provided. The method can be used very well in a fluorescence microscopy format. A detection limit of about 10 pM in zinc buffered systems, a ten to one thousand-fold improvement on the Fura indicators (which respond to Ca and Mg as well), and a one hundred thousand-fold improvement on the recently described FuraZin-1 is achieved.